

## Self-Calibrating Greenhouse Gas Balloon-Borne Sensor, Phase I

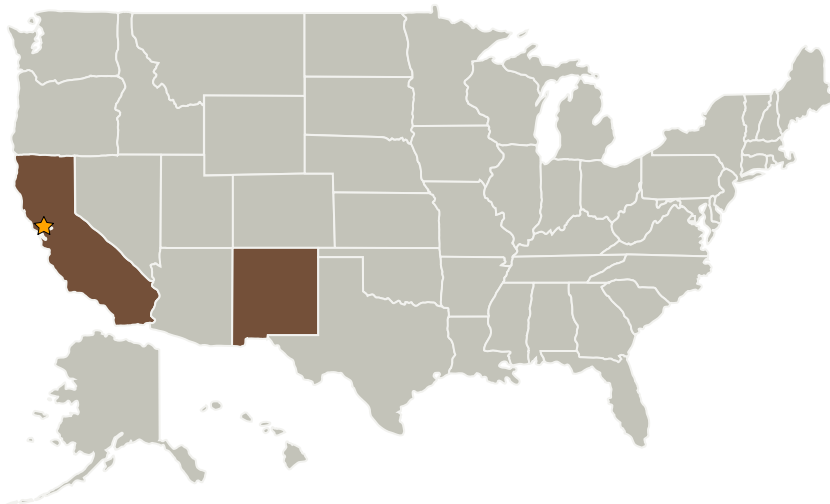
Completed Technology Project (2009 - 2009)



## Project Introduction

Over the past decade, the importance of understanding the sources and sinks of carbon dioxide and other greenhouse gases has been recognized. In particular, airborne measurements of CO<sub>2</sub> profiles throughout the troposphere and lower stratosphere have provided a great deal of useful information, but the instrumentation used has been restricted to airplane or large stratospheric-type balloon gondola platforms due to the size, weight and power requirements of these instruments. While a more widespread measurement campaign using smaller, less expensive balloon sondes could provide very important data, such an approach has been limited by the lack of suitable instrumentation. In this SBIR program, Southwest Sciences proposes to develop a lightweight, inexpensive greenhouse gas sensor suitable for balloon sonde measurements, yet exhibiting specifications that approach those of the much larger and expensive research instruments used on current airborne platforms. Using a novel ratiometric measurement technique, this sensor will provide dry air mixing ratios of CO<sub>2</sub> without the need for concurrent measurements of temperature, pressure or moisture.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Ames Research Center (ARC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Southwest Sciences, Inc.	Supporting Organization	Industry	Santa Fe, New Mexico

## Primary U.S. Work Locations

California	New Mexico
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## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX14 Thermal Management Systems
  - └ TX14.2 Thermal Control Components and Systems
    - └ TX14.2.8 Measurement and Control